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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/782,852

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EXAMINER

EOFF, ANCA

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

08/22/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/782,852

Applicant(s)

GOTO, TAKAHIRO

Examiner

Anca Eoff

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1, 4-10 and 13-21 are pending in the application.

Claims 2-3 and 11-12 are canceled.

### ***Claim Objections***

2. Claim 19 is objected to because of the following informalities: the dependency of claim 19 is not clear. The claim appears to be depend on claim 9 but refers to "the protective layer", which is a limitation introduced by claim 10. For examination on the merits, claim 19 was considered as being dependent on claim 10. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-5, 7-10, 13-14, 16-18 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298).

With regard to claims 1 and 9, Aoshima et al. disclose a photopolymerizable composition used as a recording layer in a negative planographic printing plate precursor (abstract). The photopolymerizable composition comprises:

- a polymerizable compound that has at least one radical-polymerizable ethylenically unsaturated double bond in a molecule (abstract);
- a radical polymerization initiator (abstract), which can be a sulfonium salt (see formula V in par.0026);
- a binder polymer (abstract), which is a polymer having the weight average molecular weight of 5,000 or more, preferably 10,000 to 300,000 (par.0039), and
- a compound generating heat by infrared exposure (abstract), referred to as "infrared absorbent" in par.0043.

However, Aoshima et al. do not disclose that the photopolymerizable composition used in a negative planographic printing plate precursor comprises a compound having a weight average molecular weight of 3,000 or less and having at least one carboxylic acid group, such as a trimellitic acid derivative, a pyromellitic acid derivative, a succinic acid derivative or a glycine derivative as required by the instant application.

Iwamoto et al. disclose a radiation sensitive composition comprising a binder polymer, a polyfunctional monomer and a photopolymerization initiator (abstract). The binder polymer of Iwamoto et al. is preferably a copolymer made from a monomer mixture which contains an ethylenically unsaturated monomer having at least one carboxyl group (column 5, lines 4-7), with specific examples given in column 6, lines 20-34. The radiation sensitive composition of Iwamoto et al. acts as a negative resist, since

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a developer is used to remove the part of the coated film upon which no light has been shone (column 15, lines 19-21).

The preferred polyfunctional monomer are polyacrylate or polymethacrylate (column 7, lines 18-40), with more than one ethylenically unsaturated double bonds in the molecule.

Iwamoto et al. further disclose that an organic acid may be added to the radiation sensitive composition, for improving the solubility of the coating formed by the composition in an alkaline developing solution and for reducing residual insoluble matters after the development treatment, when the binder is a carboxyl group-containing polymer (column 13, line 64-column 14, line 4).

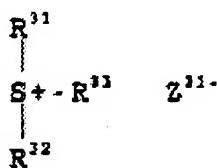
The acids that can be added to the photosensitive composition can be phenyl-group containing carboxylic acids, such as trimellitic acid (molecular weight 210.15 g/mol) or pyromellitic acid (molecular weight 254.15 g/mol) (column 14, lines 30-31) or aliphatic dicarboxylic acids, such as succinic acid (molecular weight 118.09 g/mol) (column 14, lines 12-13).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to include organic acids such as pyromellitic acid, trimellitic acid or succinic acid as disclosed by Iwamoto et al. in the photopolymerizable composition of Aoshima et al., in order to improve the solubility of the coating in an alkaline developing solution and to reduce the residual insoluble matters after the development process (Iwamoto et al., column 13, line 64-column 14, line 4).

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With regard to claims 4 and 13, Iwamoto et al. further disclose that the organic acid is comprised in the photosensitive composition in an amount from 0.01 to 10wt.% (column 14, lines 44-47).

With regard to claims 5 and 14, Aoshima et al. disclose that the radical polymerization initiator can be a sulfonium salt represented by the formula (1)



(1) (formula V in par.0026), wherein  $R_{31}$ ,  $R_{32}$ ,  $R_{33}$  may be the same or different and represent an optionally substituted hydrocarbon group having 20 or less carbon atoms and  $Z^{31-}$  represents a counterion selected from the group consisting on a halogen ion, a perchlorate ion, a tetrafluoroborate ion, a hexafluorophosphate ion and a sulfonate ion (par.0027 and par.0029).

With regard to claims 7-8 and 16-17, Aoshima et al. further disclose that the compound that generates heat by infrared exposure (also referred to as an "infrared absorbent") is a dye or pigment having a maximum absorption wavelength of 760 nm to 1,200 nm (par.0043), such as cyanine dyes, squarylium dyes or pyriliun salts (par.0045).

With regard to claim 10, Aoshima et al. further disclose that the photopolymerizable composition used as a recording layer in a planographic printing plate is protected by a protective layer that blocks oxygen (par.0013).

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With regard to claim 18, Aoshima et al. further disclose that the amount (solid content) of the recording layer that has been coated on the support and dried is preferably between 0.5 to 5.0 g/m<sup>2</sup> (par.0064).

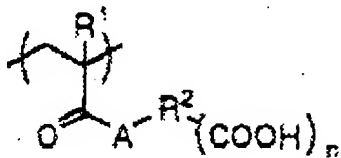
With regard to claim 20, Aoshima et al. further disclose that the planographic printing plate precursor is exposed to a solid state laser or a semiconductor laser that radiate infrared rays having a wavelength of 760 nm to 1,200 nm (par.0080).

With regard to claim 21, Aoshima et al. further disclose a photopolymerizable composition comprising a binder polymer having a molecular weight of 130,000 (par.0096).

5. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298) as applied to claims 1 and 9 above and in further view of Oshima et al. (EP 1 176 467).

With regard to claims 1, 6, 9 and 15, Aoshima et al. clearly teach a photopolymerizable composition comprising a binder polymers having a carboxylic group in the side chain and having a molecular weight of 5,000 or more, specifically 10,000 to 300,000 (par.0035-0036, par.0039 and par.0041) as applied to claims 1 and 9 but fail to disclose that the binder polymer has the structure represented by the formula (i) of claims 6 and 15 of the instant application.

Oshima et al. disclose a negative working photosensitive lithographic printing plate comprising a photosensitive layer, wherein the photosensitive layer comprises a polymeric binder having repeating units represented by the formula (2):



(2) (formula (I) in par.0011), wherein  $\text{R}^1$  represents a hydrogen atom or a methyl group,  $\text{R}^2$  represents a hydrocarbon with an alicyclic structure and 3 to 30 carbon atoms and A represents an oxygen atom or  $-\text{NR}^3$  group, where  $\text{R}^3$  represents a hydrogen atom or a monovalent hydrocarbon group with 1 to 10 carbon atoms and n is an integer from 1 to 5 (par.0012). The binder having incorporated a highly hydrophobic alicyclic hydrocarbon structure  $\text{R}^2$  in the vicinity of a carboxylic acid imparts the printing durability so, printing durability and excellent productivity can be simultaneously attained (par.0013).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the polymeric binder of Oshima et al., in the photopolymerizable composition of modified Aoshima with reasonable expectation of improving the printing durability (Oshima et al., par.0013).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298) as applied to claim 10 above and in further view of Kunita (US Patent 6,476,092).

With regard to claims 10 and 19, Aoshima et al. disclose that the photopolymerizable composition layer is covered with a protective layer as applied to



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claim 10 but fail to disclose that the main component of the protective layer is polyvinyl alcohol.

Kunita discloses a lithographic printing plate having a protective layer provided on the photopolymerizable composition. The protective layer prevents basic substances and the like present in the air, which inhibit the image-formation reaction caused in the photosensitive layer upon exposure, from mixing into the photosensitive layer and thereby enables the exposure in the air (column 131, lines 56-61). Polyvinyl alcohol is preferably used as main component because most advantageous results can be given to the fundamental properties as oxygen shutting out property and development removability (column 132, lines 8-12).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use polyvinyl alcohol as main component for the protective layer of modified Aoshima, as disclosed by Kunita et al., in order to take advantage of the oxygen blocking properties and the developer removability of the polyvinyl alcohol (Kunita, column 132, lines 8-12).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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